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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,576	06/24/2003	Hiroki Murakami	12054-0018	8220

7590

03/15/2005

CLARK & BRODY  
Suite 600  
1750 K Street, NW  
Washington, DC 20006

EXAMINER
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STEIN, STEPHEN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/601,576	MURAKAMI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen J Stein	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

*EC*

**DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

2. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,413,310 (Tamatsuka et al.).

Tamatsuka teaches a CZ silicon single crystal wafer wherein a density of COPs (crystal originated particles) having a size of 0.09  $\mu\text{m}$  or more on the surface is 1.3 COPs/ $\text{cm}^2$  or less (See abstract). Tamatsuka further teaches that wafer has a nitrogen concentration of  $1 \times 10^{10}$  to  $5 \times 10^{15}$  atoms/ $\text{cm}^3$  (See claim 13). Tamatsuka finally teaches that the oxygen concentration is 18ppma or less (See claim 19). It is expected that the disclosed wafer would exhibit the claimed COP surface density even after repeated cleaning, since the wafer is of the same material and exhibits this COP surface density after slicing. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a *prima facie* case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 ( Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977). With regard to the process limitations recited in the claims, process limitations in product claims are

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generally not dispositive on patentability unless it is shown that the process limitations produce a materially different product. MPEP §2113.

3. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by US WO00/12786.

WO0012786 teaches a CZ silicon single crystal wafer wherein a density of COPs (crystal originated particles) having a size of 0.09  $\mu\text{m}$  or more on the surface is 1.3 COPs/ $\text{cm}^2$  or less (See abstract). The reference still further teaches that wafer has a nitrogen concentration of  $1 \times 10^{10}$  to  $5 \times 10^{15}$  atoms/ $\text{cm}^3$ . The reference finally teaches that the oxygen concentration is 18ppma or less. It is expected that the disclosed wafer would exhibit the claimed COP surface density even after repeated cleaning, since the wafer is of the same material and exhibits this COP surface density after slicing. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). With regard to the process limitations recited in the claims, process limitations in product claims are generally not dispositive on patentability unless it is shown that the process limitations produce a materially different product. MPEP §2113.

#### ***Response to Arguments***

4. With regard to the rejections made to the claims over the Tamatsuka reference (and it's international counterpart application –WO0012786), applicant argues that

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applicant's claims are not anticipated by the Tamatsuka reference because it fails to disclose the claimed density of COP's on the wafer surface after it has been "sliced or sliced and repeatedly cleaned". Applicant further argues that the CZ process limitations claimed in claims 5-8 and 11-14 should be given patentable weight because the data provided in Table of the specification shows that the claimed process limitation produce a different product.

These arguments have been carefully considered by the examiner, but have not been persuasive. First, the Tamatsuka reference clearly teaches a CZ single silicon crystal wafer (e.g. a CZ silicon wafer which has been sliced from the CZ ingot) wherein the density of COPs having a size of  $0.09\text{ }\mu\text{m}$  or more on the surface is  $1.3\text{ COPs/cm}^2$  or less. Consequently, the reference clearly shows that the reference teaches the claimed COP density after being sliced. Second, it is expected that the wafer disclosed by Tamatsuka would still exhibit this COP surface density even after repeated cleanings. While the comparative data provided by applicant in Table 1 of the specification shows that process limitations which are claimed in claims 5-8 and 11-14 provide a materially different product than that by the method used to make the wafer in the comparative examples in Table 1, the table does not show that the process limitations in those claims provide a materially different product than that disclosed in the prior art of record. The evidence provided is not commensurate with that of the prior art. Further, the table does not provide any specific comparative evidence that the wafer disclosed by Tamatsuka would not exhibit the claimed COP density after repeated cleaning.

Consequently, until applicant provides such evidence the claims remain rejected as being anticipated by the prior art of record.

*Conclusion*

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

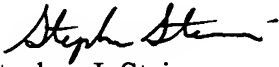
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 571-272-1535. The official fax number is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 10, 2005

A handwritten signature in black ink, appearing to read "Stephen J. Stein". The signature is written in a cursive, flowing style.

Stephen J. Stein  
Primary Examiner  
Art Unit 1775